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London	Company:	USPTO, Art Unit 2112	Phone No: (571) 272-3639
Los Angeles			
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Northern Virginia			
Orange County	Re:	In re Patent Application of	
Palo Alto		Inventor: Kim et al.	
Sacramento		Appln. No.: 09/847,991	
San Diego		Filing Date: May 2, 2001	
San Diego-North County		Title: CROSS BAR MULTIPATH RESOURCE CONTROLLER	
San Francisco		SYSTEM AND METHOD	
Silicon Valley	From:	Anthony G. Smyth	Phone No: 858.509.4007
Stamford	User No:	15636	C/M No: 044204-0308162
Sydney			
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Washington DC	Comments:		

Attachment(s):

Notice of Appeal; Pre-Appeal Brief Request for Review, and Fee Transmittal for the above-identified application.

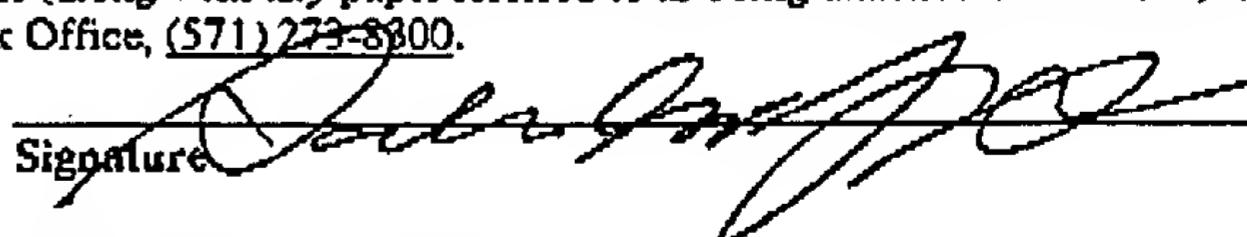
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SACHIKO Y. SNEDDEN

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**TRANSMITTAL
FORM**

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Total Number of Pages in This Submission

Application Number	09/847,891
Filing Date	05/02/2001
First Named Inventor	Jason Seung-Min Kim
Art Unit	2112
Examiner Name	Myers, Paul R.
Total Number of Pages in This Submission	12
Attorney Docket Number	044204-0308162

ENCLOSURES (Check all that apply)

<input checked="" type="checkbox"/> Fee Transmittal Form	<input type="checkbox"/> Drawing(s)	<input type="checkbox"/> After Allowance communication to Technology Center (TC)
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<input type="checkbox"/> Amendment/Reply	<input type="checkbox"/> Petition	<input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)
<input type="checkbox"/> After Final	<input type="checkbox"/> Petition to Convert to a Provisional Application	<input type="checkbox"/> Proprietary Information
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<input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53		

Remarks

Notice of Appeal; Pre-Appeal Brief Request for Review; Fax Cover Sheet

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name

Anthony G. Smyth, Reg. No. 55,636
Pillsbury Winthrop Shaw Pittman LLP

Signature

Date

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FEE TRANSMITTAL for FY 2005

 Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$ 250)

Complete if Known

Application Number	09/847,991
Filing Date	May 2, 2001
First Named Inventor	Jason Seung-Min Kim
Examiner Name	Mycrs, Paul R.
Art Unit	2112
Attorney Docket No.	044204-0308162

METHOD OF PAYMENT (check all that apply)

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1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fee Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	300	150.180	500	250	200	100	_____
Design	200	100	100	50	130	65	_____
Plant	200	100	300	150	160	80	_____
Reissue	300	150	500	250	600	300	_____
Provisional	200	100	0	0	0	0	_____

2. EXCESS CLAIM FEES

Fee Description

Each claim over 20 or, for Reissues, each claim over 20 and more than in the original patent

Small Entity
Fee (\$) Fee (\$)

50 25

Each independent claim over 3 or, for Reissues, each independent claim more than in the original patent

200 100

Multiple dependent claims

360 180

Total Claims

Extra Claims

Fee (\$)

Fee Paid (\$)

Multiple Dependent Claims

Fee (\$)

Fee Paid (\$)

- 20 or HP = X = _____

HP = highest number of total claims paid for, if greater than 20

Indep. Claims

Extra Claims

Fee (\$)

Fee Paid (\$)

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3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity)

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Total Sheets Extra Sheets Number of each additional 50 or fraction thereof Fee (\$) Fee Paid (\$)

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4. OTHER FEE(S)

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Registration No.
(Attorney/Agent) 55636

Telephone 858-509-4007

Name (Print/Type)

Anthony Smyth

Date February 9, 2006

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**FEE TRANSMITTAL
for FY 2005** Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$ 250)

Complete if Known

Application Number	09/847,991
Filing Date	May 2, 2001
First Named Inventor	Jason Seung-Min Kim
Examiner Name	Myers, Paul R.
Art Unit	2112
Attorney Docket No.	044204-0308162

METHOD OF PAYMENT (check all that apply) Check Credit Card Money Order None Other (please identify): _____ Deposit Account Deposit Account Number: 033975PILLSBURY WINTHROP SHAW
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FEES CALCULATION**1. BASIC FILING, SEARCH, AND EXAMINATION FEES**

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fee Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	300	150	500	250	200	100	_____
Design	200	100	100	50	130	65	_____
Plant	200	100	300	150	150	80	_____
Reissue	300	150	500	250	600	300	_____
Provisional	200	100	0	0	0	0	_____

2. EXCESS CLAIM FEESFee Description

Each claim over 20 or, for Reissues, each claim over 20 and more than in the original patent

Fee (\$)	Fee (\$)
50	25
200	100
360	180

Each independent claim over 3 or, for Reissues, each independent claim more than in the original patent

Multiple dependent claims

Total Claims	Extra Claims	Fee (\$)	=	Fee Paid (\$)	Multiple Dependent Claims	Fee (\$)	Fee Paid (\$)
- 20 or HP =	x	=					
HP = highest number of total claims paid for, if greater than 20							
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- 3 or HP =	x	=					
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If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity)

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Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
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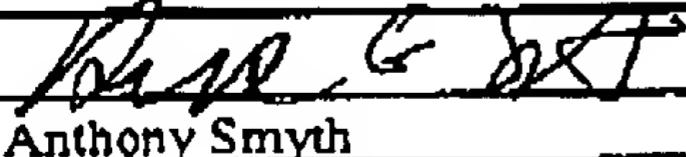
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Other. Notice of Appeal (Fee Code 2401)

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Signature		Registration No. (Attorney/Agent)	55636	Telephone	858509.4007
Name (Print/Type)	Anthony Smyth			Date	February 9, 2006

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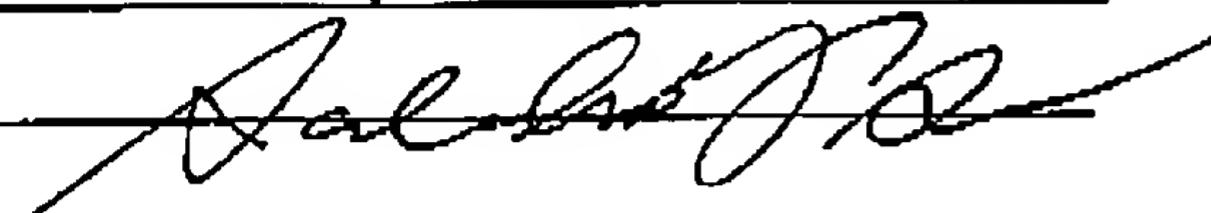
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PRE-APPEAL BRIEF REQUEST FOR REVIEW <small>transmitted via facsimile to (571) 273-8300</small>		Docket Number (Optional) 044204-0318162
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Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

I am the

applicant/inventor.

assignee of record of the entire interest.

See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)

attorney or agent of record.

Registration number 55636



Signature

Anthony G. Smyth

Typed or printed name

650-233-4802

Telephone number

attorney or agent acting under 37 CFR 1.34.

February 9, 2006

Registration number if acting under 37 CFR 1.34 _____

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required.
Submit multiple forms if more than one signature is required, see below*.

Total of 1 forms are submitted.

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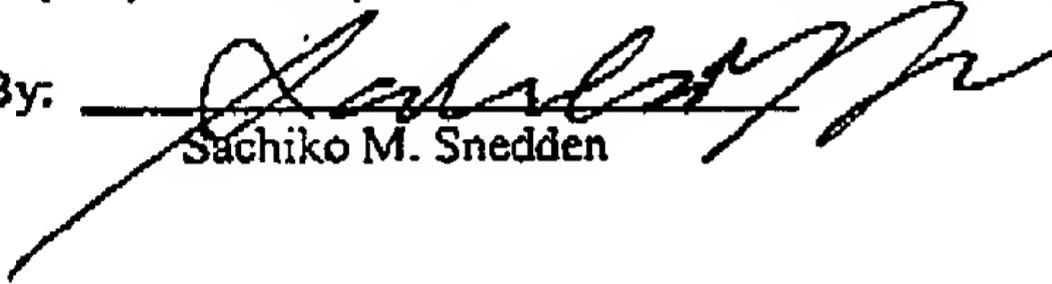
In re PATENT APPLICATION of: KIM ET AL. Confirmation Number: 5788
Application No.: 09/847,991 Group Art Unit: 2112

Filed: May 2, 2001 Examiner: MYERS, Paul R

Title: CROSS BAR MULTIPATH RESOURCE CONTROLLER SYSTEM AND METHOD

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By: 

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Pre-Appeal Brief Request for Review

This brief is submitted concurrently with a timely filed Notice of Appeal in the above-listed Application. The Notice of Appeal is filed in response to the Office Action mailed on November 9, 2005. An Advisory Action was mailed January 19, 2006 in response to an After Final Amendment filed by Applicants on January 9, 2006.

REMARKS

Claims 1-27 remain pending in the Application of which claims 1, 11, 21, 24 and 27 are independent claims. The Final Office Action rejected claims 1-27 under 35 U.S.C. 103(a) as being allegedly unpatentable over U.S. Patent No. 6,636,933 to MacLellan et al. ("MacLellan") in view of U.S. Patent No. 5,394,551 to Holt et al. ("Holt"). Claims 1-3 also stand rejected under 35 U.S.C. 103 as allegedly being unpatentable over U.S. Patent No. 5,053,942 to Srinivasan ("Srinivasan") in view of Holt. Claims 1-3, 8-9, 11-13, 18-19, 21-22 and 24-25 stand rejected under 35 U.S.C. 103 as allegedly being unpatentable over U.S. Patent No. 6,125,429 to Goodwin et al. ("Goodwin") in view of Holt. Claims 1-2, 11-12, 21 and 24 stand rejected under 35 U.S.C. 103 as allegedly being unpatentable over U.S. Patent No. 5,081,575 to Hiller et al. ("Hiller") in view of Holt.

The MacLellan and Holt References do not Teach all Elements of the Claims

It is factually inaccurate to suggest that MacLellan and Holt teach a resource controller and a bus that is connected to each of one or more resources and to each of one or more processors. Independent claims 1, 11, 21 and 24 require a resource controller and bus that is connected to each resource and to each processor, wherein the resource controller is capable of permitting each processor to simultaneously access a different resource from the one or more resources, and wherein the resource controller includes a hardware semaphore unit for controlling access to the shared resources. Independent claim 27 requires a memory controller and a peripheral controller and plural busses. In the Final Office Action, the Examiner contends that MacLellan's crossbar switch system interface 160 teaches a bus that is connected to each resource and to each processor. This contention is clearly erroneous.

MacLellan teaches "a plurality of, here 32 front-end directors 180₁-180₃₂ coupled to the host computer/server 120 via ports-123₃₂; a plurality of back-end directors 200₁-200₃₂ coupled to the bank of disk drives 140 via ports 123₃₃-123₆₄" (see Fig. 2 and col. 4, line 65 – col. 5, line 2). "More particularly, in the case of the front-end directors 180₁-180₃₂, the data passes between the host computer to the global cache memory 220 *through the data pipe 316 in the front-end directors 180₁-180₃₂ ...*" and "[i]n the case of the back-end directors 200₁-200₃₂ *the data passes between the back-end directors 200₁-200₃₂ and the bank of disk drives 140 and the global cache memory 220 through the data pipe 316 in the back-end directors 200₁-200₃₂*" (col. 5, lines 22-34).

with emphasis added). This excerpt demonstrates that MacLellan does not teach a bus that is connected to each resource and to each processor but rather teaches host computers and resources each having their own port and back-end director.

The Examiner's characterization of MacLellan implicitly acknowledges the lack of a teaching of a bus that is connected to each of one or more resources and to each of one or more processors. The Examiner states that "crossbar switch system interface 160 allows simultaneous accesses to different resources from different processors parallel transfers or simultaneous accesses" (Final Office Action page 2, lines 11-14). Thus, the Examiner apparently ignores explicit descriptions of structure in MacLellan and argues the claim rejections based on alleged similarities in results obtained by MacLellan and the claimed invention. Applicants respectfully submit that, alleged results notwithstanding, MacLellan does not teach the recited bus and actually teaches away from a bus connected to each resource and processor because MacLellan explicitly teaches individual ports and directors connecting processors and disk drives.

Nor does Holt teach a bus connected to each resource and to each processor. Holt is cited for the proposition that a semaphore can control access to a resource (Final Office Action page 2, lines 17-19). The Examiner also offers the hackneyed generalization that hardware and software are logically equivalent (Final office Action, page 4, lines 2-3). However, these arguments are moot because the Examiner cannot show why MacLellan would benefit from the use of a hardware semaphore unit. As discussed, *supra*, the system taught in MacLellan provides individual ports for computers and disk drives and an intervening cache memory (see col. 5, lines 22-34). In such a system, contention can be eliminated, thereby rendering a semaphore useless. Because MacLellan teaches away from the recited bus, it must necessarily teach away from the use of a semaphore and, more specifically, away from a resource controller that includes a hardware semaphore unit for controlling access to shared resources. Therefore, the rejections based on combinations of MacLellan and Holt are improper.

All Elements of the Claims are not Taught by Holt Combined with Srini, Goodwin or Hiller

In the Final Office Action, combinations of Srini, Goodwin and Hiller and Holt are cited in support of various claim rejections. However, none of these references teach a bus that is connected to each of one or more resources and to each of one or more processors. Instead, each of the Srini, Goodwin and Hiller references teaches the use of cross-connect or crossbar switches that create point-to-point connection between, e.g., a specific one of many processors and a

specific one of many memories. For at least the reasons provided above in the discussion of MacLellan, the rejections based on Srini, Goodwin and Hiller are also improper.

Furthermore, and as shown above, Holt does not teach a bus connected to each resource and to each processor and consequently does not cure the deficiencies of Srini, Goodwin or Hiller. Nor could motivation have existed for combining Holt with any of Srini, Goodwin and Hiller. Each of Srini, Goodwin and Hiller teach a switching mechanism for establishing point-to-point connections and the switching mechanisms are, by necessity, intrinsically aware of the availability of all resources connected to the switch. Consider Srini by way of example:

Srini is directed to a crossbar switch that provides individual connections for processors and memory (see Fig. 1 and col. 3, line 59 – col. 4, line 10). Srini teaches an *arbiter* for controlling access to a shared memory (see, e.g., Srini at col. 5, lines 21-35, emphasis added). Srini explicitly teaches access control based on an arbiter that is constructed as a tree of one-of-two arbiters employing a synchronous scheme (Srini at col. 5, lines 36-66). Srini teaches the importance of such a scheme in providing an arbiter that “must be impartial in the sense that it gives equal priority to the processors ...” and Srini further teaches that “no single processor can dominate a memory module while others are waiting for the same module” (col. 5, lines 17-21). Thus, Srini implements an apparently preemptive scheme that dictates connections rather than establishing connections based on an assessment of resource availability.

Although Srini teaches systems that have no need for semaphores, the Examiner suggests that motivation could have existed to replace or somehow supplement Srini’s arbiter with a hardware semaphore controller. Specifically, the Examiner offers that “Srini does not state how it knows which resource is in use” and “[p]reventing contention is the purpose of a semaphore that indicates which resource is in use.” With respect, this argument is specious because Srini’s resources are connected at the direction of the arbiter. Since the arbiter is in complete control of these connections, it must know exactly which resources are in use at all times. Thus, an impartial arbiter in a crossbar switch is aware of the status of status of all resources and the arbiter would have no use for a semaphore that functioned in the manner defined by the Examiner. Consequently, no motivation could have existed to combine the references as proposed by the Examiner and there could have been no expectation of successfully achieving an improvement or advantage by combining Holt with any of Srini, Goodwin and Hiller.

CONCLUSION

For at least the reasons provided, the rejections of the claims are improper because the prior art references fail to teach or suggest all the claim limitations, no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art would have existed to modify or combine the reference teachings and no reasonable expectation of success would have accrued from combining the references. Therefore, the rejections are improper and should be withdrawn. Further, the claims are believed to be in form for allowance, and such action is hereby solicited.

Date: February 9, 2006

PILLSBURY WINTHROP SHAW PITTMAN LLP
2475 Hanover Street
Palo Alto, CA 94304-1114
Telephone: (650) 233-4802
Facsimile: (650) 233-4545 Customer Number: 27498



ANTHONY G. SMYTH
Registration No. 55636